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**IDEALIST**

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**SUBJ: AEC TEST EVALUATION**

1. IN RESPONSE TO REF A, THE FOL IS A REPORT ON THE FIXED SLIT AND AEC MSNS FLOWN ON 10 AND 13 APR 71, RESPECTIVELY. THE PURPOSE OF THESE MSNS WAS TO EVALUATE THE AEC SENSOR'S PERFORMANCE WHERE LAND/WATER CONTRAST IS INVOLVED, AND ITS CAPABILITY TO BE USED IN THE OLD HEAD PROGRAM.

2. THE FIXED SLIT MSN IS DEGRADED BY CLOUD COVER AND MORE THAN THE USUAL NUMBER OF LIGHT LEAK INDUCED FOG PATTERNS. THIS INCREASE IN FOG PATTERNS IS RELATED TO A CAPPING SHUTTER PROBLEM WHICH WAS NOT PRESENT ON THE SUBSEQUENT AEC TEST WHICH USED THE SAME 8005 CAMERA UNIT. THE AEC TEST FLIGHT DEVIATED FROM THE SUGGESTED FLIGHT PLAN BY THAT PORTION STATED IN PARA 3B OF REF B. THEREFORE, DUE TO THE TRACK/TIME DIFFERENCES BETWEEN THE MSNS, THE DEGRADATIONS OF THE FIXED SLIT MSN, AND THE OVEREXPOSURE PROBLEM OF THE AEC SENSOR MSN, THE FIXED SLIT MSN WAS NOT USED IN THIS EVALUATION.

3. A SUBJECTIVE AND DENSITOMETRIC EVALUATION OF THE AEC TEST IMAGERY INDICATED THAT THE ENTIRE MSN IS OVEREXPOSED BY APPROX ONE HALF TO TWO STOPS. FLIGHT LEGS FLOWN OVER AVERAGE TERRAIN OR TERRAIN CONSISTING OF SMALL LAKES AND AN AVERAGE AMOUNT OF VEGETATION PROVIDED THE BEST EXPOSURE, I.E., ONE HALF STOP OVEREXPOSED. THE FLIGHT PATH COVERING THE FLORIDA KEYS AND THAT PORTION ENTIRELY OVER WATER REPRESENTS THE EXPOSURE EXTREME OF THE MSN, I.E., TWO STOPS OVEREXPOSED COVERAGE OF LAND TO SEA DISPLAYS A GRADUAL INCREASE IN EXPOSURE AS THE SENSOR PASSES FROM TERRAIN TO COASTAL AREA, TO SEA, SUCH THAT THE LAST FWD FR OF LAND WITH ACCEPTABLE EXPOSURE HAS ITS CONJUGATE AFT FR SEVERELY OVEREXPOSED. CONVERSELY, WHEN COVERAGE IS FROM SEA TO LAND, SEVERAL FWD FRs ARE OVEREXPOSED BEFORE A CONJUGATE PAIR WITH ACCEPTABLE EXPOSURE OCCURS. LARGE LAKES ALSO HAVE AN AFFECT ON THE SENOR. THE NUMBER OF FRs OVEREXPOSED IS CONSISTENT WITH THE LAKE SIZE.

4. THE AEC SENSOR APPEARS TO HAVE INITIATED SLIT WIDTH CHANGES AS INTENDED BY SCENE ILLUMINANCE. HOWEVER SINCE THE AEC SENSOR WAS NOT CALIBRATED FOR A W-12/DUAL GAMMA PROCESS, AS PER REF C, THE OVER-EXPOSURE WHICH OCCURRED CANNOT BE DIRECTLY RELATED TO SLIT WIDTH SELECTION ERROR. THEREFORE WE SUGGEST THAT ANOTHER AEC TEST FLIGHT BE FLOWN WITH THE SENSOR CALIBRATED FOR THE PROPER FILTER/FILM/PROCESS COMBINATION. WE SEE NO NEED AT THIS TIME TO RESCHEDULE A FIXED SLIT TEST.

**S E C R E T**

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**GROUP ONE**

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